

**SN 10/643,740**

**PATENT**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Application of: Stephan K. Gipp

Examiner: Jennifer N. To

Serial No.: 10/643,740

Group Art Unit: 2195

Filed: August 18, 2003

Docket: 1376.716US1

For: SYSTEM AND METHOD FOR ALLOCATING SYSTEM RESOURCES

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**APPEAL BRIEF UNDER 37 CFR § 41.37**

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Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

The Appeal Brief is presented in support of the Notice of Appeal to the Board of Patent Appeals and Interferences, filed on October 9, 2008, from the Final Rejection of claims 1-9 and 11-34 of the above-identified application, as set forth in the Final Office Action mailed on August 12, 2008.

The Commissioner of Patents and Trademarks is hereby authorized to charge Deposit Account No. 19-0743 in the amount of \$540.00 which represents the requisite fee set forth in 37 C.F.R. § 41.20(b)(2). The Appellant respectfully requests consideration and reversal of the Examiner's rejections of pending claims.

**APPEAL BRIEF UNDER 37 C.F.R. § 41.37**

**TABLE OF CONTENTS**

	<u>Page</u>
<b><u>1. REAL PARTY IN INTEREST</u></b> .....	2
<b><u>2. RELATED APPEALS AND INTERFERENCES</u></b> .....	3
<b><u>3. STATUS OF THE CLAIMS</u></b> .....	4
<b><u>4. STATUS OF AMENDMENTS</u></b> .....	5
<b><u>5. SUMMARY OF CLAIMED SUBJECT MATTER</u></b> .....	6
<b><u>6. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL</u></b> .....	10
<b><u>7. ARGUMENT</u></b> .....	11
<b><u>8. CLAIMS APPENDIX</u></b> .....	22
<b><u>9. EVIDENCE APPENDIX</u></b> .....	29
<b><u>10. RELATED PROCEEDINGS APPENDIX</u></b> .....	30

## **1. REAL PARTY IN INTEREST**

The real party in interest of the above-captioned patent application is the assignee, CRAY INC.

## **2. RELATED APPEALS AND INTERFERENCES**

There are no other appeals or interferences known to Appellant that will have a bearing on the Board's decision in the present appeal.

### **3. STATUS OF THE CLAIMS**

The present application was filed on August 18, 2003 with claims 1-29.

A non-final Office Action was mailed on August 10, 2007; a response was filed November 16, 2007.

A non-final Office Action was mailed on February 7, 2008; a response was filed on June 9, 2008.

A Final Office Action (hereinafter "the Final Office Action") was mailed on August 12, 2008; a response was filed on January 6, 2009.

An Advisory Action was mailed on January 14, 2009.

A Notice of Appeal was mailed on October 9, 2008.

Claim 10 was cancelled. Claims 1-9 and 11-34 stand twice rejected, remain pending, and are the subject of the present Appeal.

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#### **4. STATUS OF AMENDMENTS**

An amendment was filed under 37 CFR 41.33(a) after the date of filing an appeal and prior to the filing of this appeal brief. The amendment was filed to comply with the requirements of form that were set forth in the Final Office Action and to present the rejected claims in better form for consideration on appeal. (See MPEP 1206(I)(B) & MPEP 1206(I)(C)).

## **5. SUMMARY OF CLAIMED SUBJECT MATTER**

This summary is presented in compliance with the requirements of Title 37 C.F.R. § 41.37(c)(1)(v), mandating a “concise explanation of the subject matter defined in each of the independent claims involved in the appeal ..”. Nothing contained in this summary is intended to change the specific language of the claims described, nor is the language of this summary to be construed to limit the scope of the claims in any way.

Aspects of the present inventive subject matter include, but are not limited to, SYSTEM AND METHOD FOR ALLOCATING SYSTEM RESOURCES.

### **INDEPENDENT CLAIM 1 (FIG. 1, 2, and 5; page 4, line 5 - page 6, line 8; page 7, line 30 – page 8, line 24)**

Some of the embodiments claimed are related to a method comprising creating, in a computer system (100), a resource consumer (206) having a plurality of fields associated with the resource consumer (206), wherein the plurality of fields includes a consumer type field, a flavor field and a place field, the resource consumer (206) including at least one of a process and a thread; assigning the resource consumer (206) one of a set of flavors; determining whether the resource consumer (206) is limited to receiving resources including hardware and software resources from a certain one of a set of resource providers (208), wherein each of the set of resource providers (208) has one of the set of flavors; if the resource consumer (206) is limited to receiving resources from the certain one of the set of resource providers (208), marking the plurality of fields to indicate that the resource consumer (206) is limited to receiving resources from the certain one of the set of resource providers (208); and allocating a resource to the resource consumer (206) from one of the set of resource providers (208) whose flavor matches the flavor assigned to the resource consumer (206).

### **INDEPENDENT CLAIM 6 (FIG. 1, 2, 6, 7, and 8; page 4, line 5 - page 6, line 8; page 8, line 25 – page 12, line 20)**

Some of the embodiments claimed are related to a method comprising receiving a request for a resource from a resource consumer (206), wherein the resource consumer (206) has a first

flavor, the resource including hardware and software resources and the resource consumer (206) having a plurality of fields associated with the resource consumer (206), wherein the plurality of fields includes a consumer type field, a flavor field and a place field, the resource consumer (206) including at least one of a process and a thread; determining whether the first flavor matches a second flavor of one of a set of nodes (102); if the first flavor matches the second flavor, determining whether the resource is available in the one of the set of nodes (102); and if the resource is available in the one of the set of nodes (102), allocating the resource to the resource consumer (206).

INDEPENDENT CLAIM 11 (FIG. 1, 2, 6, 7, and 8; page 4, line 5 - page 6, line 8; page 8, line 25 - page 12, line 20)

Some of the embodiments claimed are related to a method comprising requesting a resource from a set of one or more resource providers (208) having hardware and software resources, wherein each one of the set of resource providers (208) includes one of a set of flavors, wherein the set of flavors includes an operating system flavor, a support flavor, and an application flavor, and wherein each one of the set of resource providers (208) is a node (102); and accepting the resource from one of the set of resource providers (208).

INDEPENDENT CLAIM 14 (FIG. 1, and 2; page 4, line 5 - page 6, line 8)

Some of the embodiments claimed are related to an apparatus comprising a first set of one or more nodes (102), wherein a node in the first set of one or more nodes (102) includes a second set of one or more central processing units (CPUs) (104); and a physical memory (108) communicatively coupled to each CPU of the second set, wherein the physical memory (108) includes a first flavor of the node, wherein the physical memory (108) includes an operating system (112), and wherein the operating system (112) is to allocate CPUs (104) of the second set and the physical memory (108) to resource consumers (206) that have a second flavor that matches the first flavor, the resource consumer (206) having a plurality of fields associated with the resource consumer (206), wherein the plurality of fields includes a consumer type field, a flavor field and a place field, the resource consumer (206) including at least one of a process and a thread.



INDEPENDENT CLAIM 17 (FIG. 1, 2, 6, 7, and 8; page 4, line 5 - page 6, line 8; page 8, line 25 – page 12, line 20)

Some of the embodiments claimed are related to a machine-readable medium that provides instructions, which when executed by a machine, cause the machine to perform operations comprising creating, in a computer system (100), a resource consumer (206) having a plurality of fields associated with the resource consumer (206), wherein the plurality of fields includes a consumer type field, a flavor field and a place field, the resource consumer (206) including at least one of a process and a thread; assigning the resource consumer (206) one of a set of flavors; determining whether the resource consumer (206) is limited to receiving resources including hardware and software resources from a certain one of a set of resource providers (208), wherein each of the set of resource providers (208) has one of the set of flavors; if the resource consumer (206) is limited to receiving resources from the certain one of the set of resource providers (208), marking a field to indicate that the resource consumer (206) is limited to receiving resources from the certain one of the set of resource providers (208); and allocating a resource to the resource consumer (206) from one of the set of resource providers (208) whose flavor matches the flavor assigned to the resource consumer (206).

INDEPENDENT CLAIM 22 (FIG. 1, 2, 6, 7, and 8; page 4, line 5 - page 6, line 8; page 8, line 25 – page 12, line 20)

Some of the embodiments claimed are related to a machine-readable medium that provides instructions, which when executed by a machine, cause the machine to perform operations comprising: receiving a request for a resource including hardware and software resources from a resource consumer (206) having a plurality of fields associated with the resource consumer (206), wherein the plurality of fields includes a consumer type field, a flavor field and a place field, the resource consumer (206) including at least one of a process and a thread, wherein the resource consumer (206) has a first flavor; determining whether the first flavor matches a second flavor of one of a set of nodes (102); if the first flavor matches the second flavor, determining whether the resource is available in the one of the set of nodes (102);

and if the resource is available in the one of the set of nodes (102), allocating the resource to the resource consumer (206).

INDEPENDENT CLAIM 27 (FIG. 1, 2, 6, 7, and 8; page 4, line 5 - page 6, line 8; page 8, line 25 – page 12, line 20)

Some of the embodiments claimed are related to a machine-readable medium that provides instructions, which when executed by a machine, cause the machine to perform operations comprising requesting a resource from a set of one or more resource providers (208) to provide hardware and software resources, wherein each one of the set of resource providers (208) includes one of a set of flavors, wherein the set of flavors includes an operating system flavor, a support flavor, and an application flavor, and wherein each one of the set of resource providers (208) is a node; and accepting the resource from one of the set of resource providers (208).

INDEPENDENT CLAIM 30 (FIG. 1, 2, 6, 7, and 8; page 4, line 5 - page 6, line 8; page 8, line 25 – page 12, line 20)

Some of the embodiments claimed are related to a method in a computer system (100) having a plurality of nodes (102) coupled by a network, the method comprising defining resource providers (208), wherein each resource provider (208) provides one or more resources; assigning one or more flavors to each resource provider (208); creating resource consumers (206) in the computer system (100), wherein each resource consumer (206) receives resources from one or more of the resource providers (208) and the resource consumer (206) having a plurality of fields associated with the resource consumer (206), wherein the plurality of fields includes a consumer type field, a flavor field and a place field, the resource consumer (206) including at least one of a process and a thread; assigning at least one flavor to each resource consumer (206); and allocating a resource to the resource consumer (206) from the plurality of resource providers (208) whose one or more flavors matches the flavor assigned to the resource consumer (206).

**6. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL**

Claims 14-16 and 30-34 were rejected under 35 USC § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1-9 and 11-34 were rejected under 35 USC § 103(a) as being unpatentable over Shaffer (WO 03/0385545), and in view of Breidenbach et al. (hereafter Breidenbach)(US 2003/0084085).

## **7. ARGUMENT**

### **A) The Applicable Law under 35 U.S.C. §103(a)**

To sustain a rejection under 35 U.S.C. 103, references must be cited that teach or suggest all the claim elements. M.P.E.P. § 2142 (citing *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991)). In determining the differences between the prior art and the claims, the question under 35 U.S.C. 103 is not whether the differences themselves would have been obvious, but whether the claimed invention as a whole would have been obvious. *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 218 USPQ 871 (Fed. Cir. 1983); *Schenck v. Nortron Corp.*, 713 F.2d 782, 218 USPQ 698 (Fed. Cir. 1983); *Interconnect Planning Corp. v. Feil*, 774 F.2d 1132, 1143, 227 USPQ 543, 551 (Fed. Cir. 1985); MPEP § 2141.02.

The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in Appellant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991); MPEP § 2143. The Examiner must avoid hindsight. *In re Bond*, 910 F.2d 831, 834, 15 USPQ2d 1566, 1568 (Fed. Cir. 1990).

Often, it will be necessary . . . to look to interrelated teachings of multiple patents; the effects of demands known to the design community or present in the marketplace; and the background knowledge possessed by a person having ordinary skill in the art, all in order to determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue. To facilitate review, this analysis should be made explicit. *KSR Int'l Co. V. Teleflex, Inc.*, No 04-1350 (U.S. Apr. 30, 2007) (see *KSR slip op. at 14*).

These statements in *KSR* appear to reinforce the statements which were made in *In re Fine*, 837 F.2d 1071, 1074, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988) that the Examiner must show that some objective teaching in the prior art or some knowledge generally available to one of ordinary skill in the art would lead an individual to combine the relevant teaching of the references. These statements in *KSR* also appear to reinforce the statements made in *In re Sang Su Lee*, 277 F.3d 1338, 61 USPQ2d 1430 (Fed. Cir. 2002) which indicate that the Office Action must further provide specific, objective evidence of record for finding a reason to combine reference teachings and must explain the reasoning by which the evidence is deemed to support such a finding. Mere conclusory statements are unsatisfactory.

Additionally, “all words in a claim must be considered in judging the patentability of that claim against the prior art.” *In re Wilson*<sup>1</sup> Finally, Office personnel must rely on the applicant’s disclosure to properly determine the meaning of the claims. *Markman v. Westview Instruments*

**B) Discussion of the rejection of claims 1, 6, 11, 14, 17, 22, 27, and 30 under 35 USC § 103(a) as being unpatentable over Shaffer and Breidenbach.**

**1. Shaffer and Breidenbach do not describe every element of claims 1 and 17:**

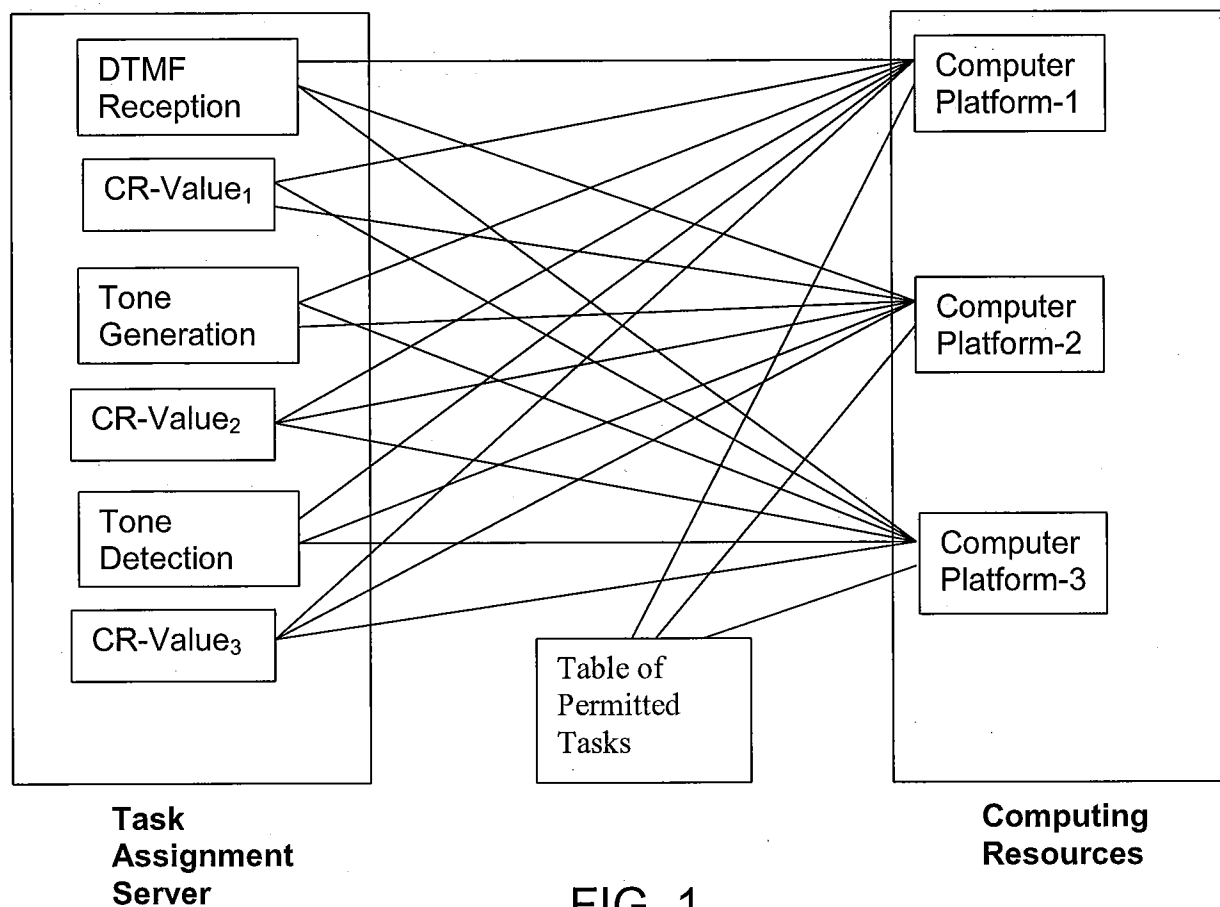
Independent claims 1 and 17 recite in part,

“assigning the resource consumer one of a set of flavors;  
determining whether the resource consumer is limited to receiving  
resources including hardware and software resources from a  
certain one of a set of resource providers, wherein each of the set  
of resource providers has one of the set of flavors; if the resource  
consumer is limited to receiving resources from the certain one of  
the set of resource providers, marking the plurality of fields to  
indicate that the resource consumer is limited to receiving  
resources from the certain one of the set of resource providers; and  
allocating a resource to the resource consumer from one of the set  
of resource providers whose flavor matches the flavor assigned to  
the resource consumer.”

As noted above, the prior art reference (or, as in this case, references when combined) must teach or suggest all the claim limitations. The Office Action states that various portions in Shaffer disclose the above elements of claims 1 and 17. Applicant respectfully disagrees with the Office Action and asserts that the Office Action has not shown all the limitations of claims 1 and 17 in the cited references. A block diagram representative of the computer system in Shaffer is shown below in FIG. 1. FIG. 1 shows the mapping of task assignments to computer resources. The server shown in FIG. 1 includes various tasks (140) (e.g., DTMF, tone generation, and call progress tone detection) and computer resource values (e.g., CR-Value1, CR-Value2, and CR-Value3). Each of the computer resources (Computer Platform-1, Computer Platform-2, and Computer Platform-3) are configured to be in communication with memory. A table of permitted accesses is stored in the memory, which facilitates the checking of permitted tasks that are allowed for a chosen computer resource.

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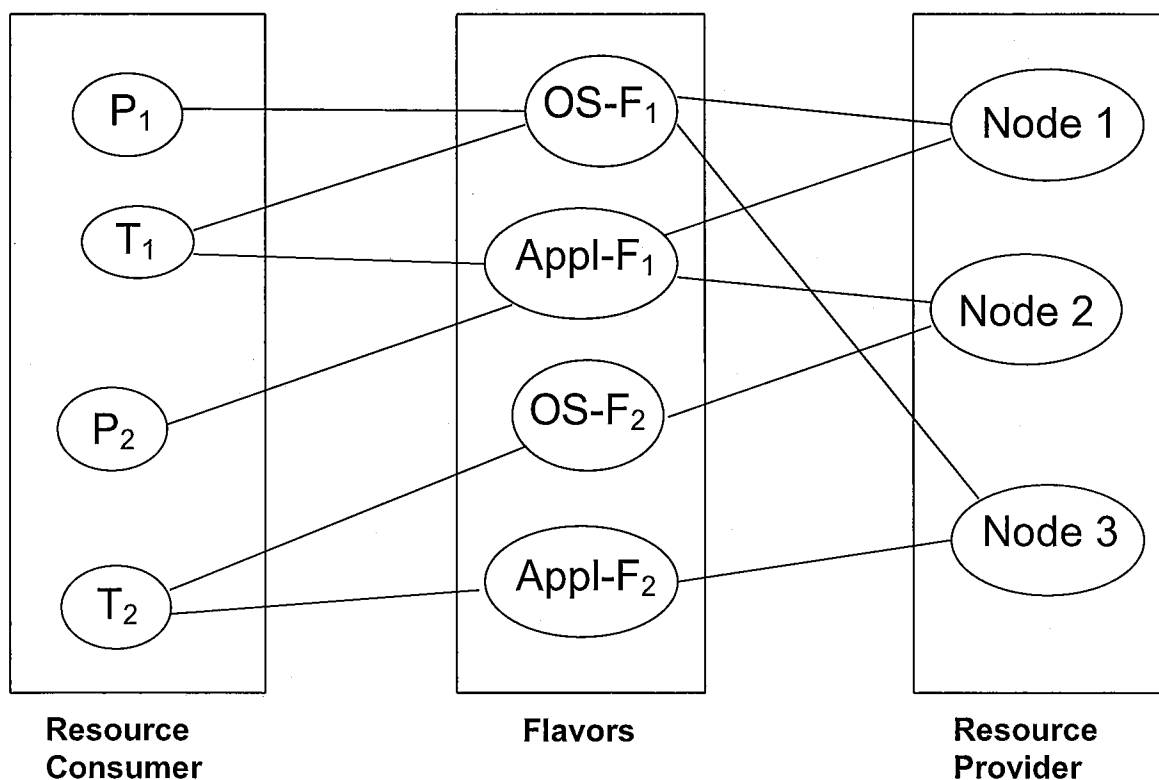
<sup>1</sup> 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970).



Contrary to the system shown in FIG. 1, Applicant's application details a system in FIG. 2. FIG. 2 shows a two-way association of resource providers and resource consumers using flavors as described and claimed by the Applicant. Resource consumers may be either a process or a thread. Each process or thread can be associated with a designator (termed "flavor"). In addition, each process or thread can initiate from an operating system or a software application. On the other hand, resource providers are represented by nodes. Each node is associated with at least one flavor.

With regard to claims 1 and 17, the Office Action has not shown in either of the references a teaching or suggestion of **"assigning the resource consumer one of a set of flavors (emphasis added)."** The Office Action states that Shaffer at page 8, lines 4-5, and lines 20-21 discloses this element. On the contrary, the cited portion of Shaffer states the following: "At step 204, a task type and a computer resource value is assigned to each task. The task type and

computer resource value may be assigned to a task 140 when the task 140 is generated or received by the system software 136.” Schaffer does not disclose an intermediate mapping between resource providers and resource consumers using flavors as shown in FIG. 2 and claimed in claims 1 and 17. The use of flavors adds a layer of abstraction between the resource consumer and the resource provider, which is not present in the scheme shown in Shaffer. Therefore, Shaffer does not disclose, “assigning the resource consumer one of a set of flavors,” as claimed in independent claims 1 and 17.



**FIG. 2**

The Office Action has also not shown in either of the references a teaching or suggestion of “**determining whether the resource consumer is limited to receiving resources including hardware and software resources from a certain one of a set of resource providers, wherein each of the set of resource providers has one of the set of flavors (emphasis added).**” As

described above, Shaffer does not disclose an intermediate mapping between resource providers and resource consumers using flavors.

Additionally, neither Shaffer nor Breidenbach teach or suggest, **“if the resource consumer is limited to receiving resources from the certain one of the set of resource providers, marking the plurality of fields to indicate that the resource consumer is limited to receiving resources from the certain one of the set of resource providers; and allocating a resource to the resource consumer from one of the set of resource providers whose flavor matches the flavor assigned to the resource consumer (emphasis added).”**

Applicant teaches, and claims in claims 1 and 17, that allocating a resource to the resource consumer is a function of matching the flavor of the resource provider to the resource consumer.

In contrast, Shaffer allocates tasks indiscriminately to computer platforms. It is up to the computer platform to determine whether a task provided to the computer platform is one that is supported by that computer platform using a table. (See page 8, lines 25-28 and page 10, lines 5-14) This is an inefficient system compared to that described and claimed by Applicant.

Breidenbach describes the following:

“a system for improving the performance of a plurality of peripheral devices that comprises a first peripheral device associated with a first software component and having a first functionality, and a second peripheral device associated with a second software peripheral device being coupled to the first peripheral device being coupled to the first peripheral device, the first and second peripheral devices together performing functionality in addition to the first and second functionalities and having a common user interface.” (See Breidenbach, Abstract)

The combination of Shaffer and Breidenbach does not meet the claim limitations of claims 1 and 17 any better than Shaffer by itself. Because critical claim limitations are not disclosed by Shaffer and Breidenbach, either alone or in combination, a *prima facie* case of obviousness has not been established with respect to claims 1 and 17.



2. *Shaffer and Breidenbach do not describe every element of claims 6 and 22:*

Independent claims 6 and 22 recite in part, “receiving a request for a resource from a resource consumer, wherein the resource consumer has a first flavor, the resource consumer having a plurality of fields associated with the resource consumer, wherein the plurality of fields includes a consumer type field, a flavor field and a place field, the resource consumer including at least one of a process and a thread; determining whether the first flavor matches a second flavor of one of a set of nodes; if the first flavor matches the second flavor, determining whether the resource is available in the one of the set of nodes; and if the resource is available in the one of the set of nodes, allocating the resource to the resource consumer.”

Applicant respectfully disagrees with the Office Action and asserts that the Office Action has not shown all the limitations of claims 6 and 22 in the cited references. Specifically, Shaffer does not disclose, “**determining whether the first flavor matches a second flavor of one of a set of nodes** (emphasis added).” The Office Action states that Shaffer at page 8, lines 25-30 discloses this element. On the contrary, the cited portion of Shaffer states the following:

“the task 140 is then assigned to a computer platform 148 (step 208). For example, the task 140 may be provided to a computer platform 148 over the network 128. The computer platform 148 may then **determine whether the task type is one that is supported by that computer platform 148** (step 212). If the task type is not supported, the computer platform 148 rejects the tasks 140, and the system software 136 assigns the task 140 to a next computer platform 148 (step 216). (emphasis added)”

As described above and shown in FIG. 2, Shaffer does not disclose an intermediate mapping between resource providers and resource consumers using flavors that would provide a layer of abstraction between the resource providers and resource consumers. In contrast, Shaffer allocates tasks indiscriminately to computer platforms. It is up to the computer platform to determine whether a task provided to the computer platform is one that is supported by that computer platform using a table. (See page 8, lines 25-28 and page 10, lines 5-14) This is an inefficient system compared to that described and claimed by Applicant.

Breidenbach describes the following:

“a system for improving the performance of a plurality of peripheral devices that comprises a first peripheral device associated with a first software component and having a first

functionality, and a second peripheral device associated with a second software peripheral device being coupled to the first peripheral device being coupled to the first peripheral device, the first and second peripheral devices together performing functionality in addition to the first and second functionalities and having a common user interface.” (See Breidenbach, Abstract)

The combination of Shaffer and Breidenbach does not meet the claim limitations of claims 1 and 17 any better than Shaffer by itself. Because critical claim limitations are not disclosed by Shaffer and Breidenbach, either alone or in combination, a *prima facie* case of obviousness has not been established with respect to claims 6 and 22.

**3. *Shaffer and Breidenbach do not describe every element of claims 11 and 27:***

Independent claims 11 and 27 recite in part, “requesting a resource from a set of one or more resource providers having hardware and software resources, wherein each one of the set of resource providers includes one of a set of flavors, wherein the set of flavors includes an operating system flavor, a support flavor, and an application flavor, and wherein each one of the set of resource providers is a node; and accepting the resource from one of the set of resource providers.”

Applicant respectfully disagrees with the Office Action and asserts that the Office Action has not shown all the limitations of claims 11 and 27 in the cited references. Specifically, Shaffer and Breidenbach does not disclose “wherein each one of the set of **resource providers includes one of a set of flavors**, wherein the **set of flavors includes an operating system flavor, a support flavor, and an application flavor** (emphasis added).” As described earlier and as shown in FIG. 2, Shaffer does not disclose an intermediate mapping between resource providers and resource consumers using flavors that would provide a layer of abstraction between the resource providers and resource consumers.

Because critical claim limitations are not disclosed by Shaffer and Breidenbach, either alone or in combination, a *prima facie* case of obviousness has not been established with respect to claims 11 and 27.

4. *Shaffer and Breidenbach do not describe every element of claim 14:*

Independent claim 14 recites in part, “a first set of one or more nodes, wherein a node in the first set of one or more nodes includes a second set of one or more central processing units (CPUs); and a physical memory communicatively coupled to each CPU of the second set, wherein the physical memory includes a first flavor of the node, wherein the physical memory includes an operating system, and wherein the operating system is to allocate CPUs of the second set and the physical memory to resource consumers that have a second flavor that matches the first flavor, the resource consumer having a plurality of fields associated with the resource consumer, wherein the plurality of fields includes a consumer type field, a flavor field and a place field, the resource consumer including at least one of a process and a thread.

Applicant respectfully disagrees with the Office Action and asserts that the Office Action has not shown all the limitations of claim 14 in the cited references. Specifically, Shaffer and Breidenbach does not disclose, “**wherein the physical memory includes a first flavor of the node, wherein the operating system is to allocate CPUs of the second set and the physical memory to resource consumers that have a second flavor that matches the first flavor, the resource consumer having a plurality of fields associated with the resource consumer (emphasis added).**”

As described above and shown in FIG. 2, Shaffer does not disclose an intermediate mapping between resource providers and resource consumers using flavors that would provide a layer of abstraction between the resource providers and resource consumers. In contrast, Shaffer allocates tasks indiscriminately to computer platforms. It is up to the computer platform to determine whether a task provided to the computer platform is one that is supported by that computer platform using a table. (See page 8, lines 25-28 and page 10, lines 5-14) This is an inefficient system compared to that described and claimed by Applicant.

Breidenbach describes the following:

“a system for improving the performance of a plurality of peripheral devices that comprises a first peripheral device associated with a first software component and having a first functionality, and a second peripheral device associated with a second software peripheral device being coupled to the first peripheral device being coupled to the first peripheral device, the first and second peripheral devices together performing

functionality in addition to the first and second functionalities and having a common user interface.” (See Breidenbach, Abstract)

The combination of Shaffer and Breidenbach does not meet the claim limitations of claim 14 any better than Shaffer by itself. Because critical claim limitations are not disclosed by Shaffer and Breidenbach, either alone or in combination, a *prima facie* case of obviousness has not been established with respect to claim 14.

**5. *Shaffer and Breidenbach do not describe every element of claim 30:***

Independent claim 30 recites in part, “assigning one or more flavors to each resource provider; creating resource consumers in the computer system, the resource consumer having a plurality of fields associated with the resource consumer, wherein the plurality of fields includes a consumer type field, a flavor field and a place field, the resource consumer including at least one of a process and a thread; assigning at least one flavor to each resource consumer; and allocating a resource to the resource consumer from the plurality of resource providers whose one or more flavors matches the flavor assigned to the resource consumer.”

Applicant respectfully disagrees with the Office Action and asserts that the Office Action has not shown all the limitations of claim 30 in the cited references. Schaffer does not disclose an intermediate mapping between resource providers and resource consumers using flavors as shown in FIG. 2. The use of flavors adds a layer of abstraction between the resource consumer and the resource provider, which is not present in the scheme shown in Shaffer and Breidenbach.

Applicant teaches, and claims in claim 30, that allocating a resource to the resource consumer is a function of matching the flavor of the resource provider to the resource consumer. In contrast, Shaffer allocates tasks indiscriminately to computer platforms. It is up to the computer platform to determine whether a task provided to the computer platform is one that is supported by that computer platform using a table. (See page 8, lines 25-28 and page 10, lines 5-14) This is an inefficient system compared to that described and claimed by Applicant.

Breidenbach describes the following:

“a system for improving the performance of a plurality of peripheral devices that comprises a first peripheral device associated with a first software component and having a first functionality, and a second peripheral device associated with a

second software peripheral device being coupled to the first peripheral device being coupled to the first peripheral device, the first and second peripheral devices together performing functionality in addition to the first and second functionalities and having a common user interface.” (See Breidenbach, Abstract)

The combination of Shaffer and Breidenbach does not meet the claim limitations of claim 30 any better than Shaffer by itself. Therefore, Shaffer and Breidenbach do not disclose, “assigning at least one flavor to each resource consumer and **allocating a resource to the resource consumer from the plurality of resource providers whose one or more flavors matches the flavor assigned to the resource consumer** (emphasis added),” as claimed in independent claim 30.

Because critical claim limitations are not disclosed by Shaffer and Breidenbach, either alone or in combination, a *prima facie* case of obviousness has not been established with respect to claim 30.

Therefore, since there is no evidence in the record to support all the claimed elements of claims 1, 6, 11, 14, 17, 22, 27 and 30, a *prima facie* case of obviousness has not been established with respect to these claims. Therefore, claims 1, 6, 11, 14, 17, 22, 27, and 30 (and all claims depending from them) should be in condition for allowance. Appellant respectfully request reconsideration and the withdrawal of the rejection of claims 1-9, and 11-34.

**SUMMARY**

For the reasons argued above, claims 1-9 and 11-34 were not properly rejected under 35 USC § 103(a) as being unpatentable over Shaffer (WO 03/0385545), and in view of Breidenbach et al. (US 2003/0084085).

It is respectfully submitted that the art cited does not render the claim anticipated and that the claims are patentable over the cited art. Reversal of the rejection and allowance of the pending claim are respectfully requested.

Respectfully submitted,

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Minneapolis, MN 55402

Date February 9, 2009 By Thomas F. Brennan  
Thomas F. Brennan  
Reg. No. 35,075

**CERTIFICATE UNDER 37 CFR 1.8:** The undersigned hereby certifies that this correspondence is being filed using the USPTO's electronic filing system EFS-Web, and is addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on this 9th day of February 2009.

CANDIS BUENDING

\_\_\_\_\_  
Name

Candis Buending  
Signature

**8. CLAIMS APPENDIX**

1. A method comprising:
  - creating, in a computer system, a resource consumer having a plurality of fields associated with the resource consumer, wherein the plurality of fields includes a consumer type field, a flavor field and a place field, the resource consumer including at least one of a process and a thread;
  - assigning the resource consumer one of a set of flavors;
  - determining whether the resource consumer is limited to receiving resources including hardware and software resources from a certain one of a set of resource providers, wherein each of the set of resource providers has one of the set of flavors;
  - if the resource consumer is limited to receiving resources from the certain one of the set of resource providers, marking the plurality of fields to indicate that the resource consumer is limited to receiving resources from the certain one of the set of resource providers; and
  - allocating a resource to the resource consumer from one of the set of resource providers whose flavor matches the flavor assigned to the resource consumer.
2. The method of claim 1, wherein marking the plurality of fields to indicate that the resource consumer is limited to receiving resources from the certain one of the set of resource providers includes storing the plurality of fields in memory associated with the resource consumer.
3. The method of claim 1, wherein the resource includes a physical memory.
4. The method of claim 1, wherein a resource provider includes one or more central processing units.
5. The method of claim 1, wherein the set of flavors includes application flavors, support flavors, and operating system flavors.

6. A method comprising:

receiving a request for a resource from a resource consumer, wherein the resource consumer has a first flavor, the resource including hardware and software resources and the resource consumer having a plurality of fields associated with the resource consumer, wherein the plurality of fields includes a consumer type field, a flavor field and a place field, the resource consumer including at least one of a process and a thread;

determining whether the first flavor matches a second flavor of one of a set of nodes;

if the first flavor matches the second flavor, determining whether the resource is available in the one of the set of nodes; and

if the resource is available in the one of the set of nodes, allocating the resource to the resource consumer.

7. The method of claim 6, wherein the place field indicates that the resource consumer can only receive resources from a certain one of the set of nodes, wherein each of the set of nodes has a node identifier, and wherein the method further includes determining whether the place field of the resource consumer matches the node identifier of the one of the set of nodes.

8. The method of claim 6, wherein a resource provider includes a CPU.

9. The method of claim 6, wherein the resource includes a physical memory.

11. A method comprising:

requesting a resource from a set of one or more resource providers having hardware and software resources, wherein each one of the set of resource providers includes one of a set of flavors, wherein the set of flavors includes an operating system flavor, a support flavor, and an application flavor, and wherein each one of the set of resource providers is a node; and

accepting the resource from one of the set of resource providers.



12. The method of claim 11, wherein a resource provider includes one or more central processing units.
13. The method of claim 11, wherein the node includes one or more central processing units and physical memory.
14. An apparatus comprising:
  - a first set of one or more nodes, wherein a node in the first set of one or more nodes includes a second set of one or more central processing units (CPUs); and
  - a physical memory communicatively coupled to each CPU of the second set, wherein the physical memory includes a first flavor of the node, wherein the physical memory includes an operating system, and wherein the operating system is to allocate CPUs of the second set and the physical memory to resource consumers that have a second flavor that matches the first flavor, the resource consumer having a plurality of fields associated with the resource consumer, wherein the plurality of fields includes a consumer type field, a flavor field and a place field, the resource consumer including at least one of a process and a thread.
15. The apparatus of claim 14, wherein the resource consumers are processes and threads.
16. The apparatus of claim 14, wherein the first flavor is an operating system flavor, a support flavor, or a application flavor.
17. A machine-readable medium that provides instructions, which when executed by a machine, cause the machine to perform operations comprising:
  - creating, in a computer system, a resource consumer having a plurality of fields associated with the resource consumer, wherein the plurality of fields includes a consumer type field, a flavor field and a place field, the resource consumer including at least one of a process and a thread;

assigning the resource consumer one of a set of flavors;

determining whether the resource consumer is limited to receiving resources including hardware and software resources from a certain one of a set of resource providers, wherein each of the set of resource providers has one of the set of flavors;

if the resource consumer is limited to receiving resources from the certain one of the set of resource providers, marking a field to indicate that the resource consumer is limited to receiving resources from the certain one of the set of resource providers; and

allocating a resource to the resource consumer from one of the set of resource providers whose flavor matches the flavor assigned to the resource consumer.

18. The machine-readable medium of claim 17, wherein marking the field to indicate that the resource consumer is limited to receiving resources from the certain one of the set of resource providers includes storing the field in memory associated with the resource consumer.

19. The machine-readable medium of claim 17, wherein in the resource includes a physical memory.

20. The machine-readable medium of claim 17, wherein a resource provider includes one or more central processing units.

21. The machine-readable medium of claim 17, wherein the set of flavors includes application flavors, support flavors, and operating system flavors.

22. A machine-readable medium that provides instructions, which when executed by a machine, cause the machine to perform operations comprising:

receiving a request for a resource including hardware and software resources from a resource consumer having a plurality of fields associated with the resource consumer, wherein the plurality of fields includes a consumer type field, a flavor field and a place field, the resource consumer including at least one of a process and a thread, wherein the resource consumer has a first flavor;

determining whether the first flavor matches a second flavor of one of a set of nodes;  
if the first flavor matches the second flavor, determining whether the resource is available  
in the one of the set of nodes; and  
if the resource is available in the one of the set of nodes, allocating the resource to the  
resource consumer.

23. The machine-readable medium of claim 22, wherein the resource consumer has a place field, wherein the place field indicates that the resource consumer can only receive resources from a certain one of the set of nodes, wherein each of the set of nodes has a node identifier, and wherein the method further includes determining whether the place field of the resource consumer matches the node identifier of the one of the set of nodes.

24. The machine-readable medium of claim 22, wherein a resource provider includes a CPU.

25. The machine-readable medium of claim 22, wherein the resource includes a physical memory.

26. The machine-readable medium of claim 22, wherein the resource consumer is a process or a thread.

27. A machine-readable medium that provides instructions, which when executed by a machine, cause the machine to perform operations comprising:

requesting a resource from a set of one or more resource providers to provide hardware and software resources, wherein each one of the set of resource providers includes one of a set of flavors, wherein the set of flavors includes an operating system flavor, a support flavor, and an application flavor, and wherein each one of the set of resource providers is a node; and

accepting the resource from one of the set of resource providers.

28. The machine-readable medium of claim 27, wherein a resource provider includes one or more central processing units.

29. The machine-readable medium of claim 27, wherein the node includes one or more central processing units and physical memory.

30. A method in a computer system having a plurality of nodes coupled by a network, the method comprising:

defining resource providers, wherein each resource provider provides one or more resources;

assigning one or more flavors to each resource provider;

creating resource consumers in the computer system, wherein each resource consumer receives resources from one or more of the resource providers and the resource consumer having a plurality of fields associated with the resource consumer, wherein the plurality of fields includes a consumer type field, a flavor field and a place field, the resource consumer including at least one of a process and a thread;

assigning at least one flavor to each resource consumer; and

allocating a resource to the resource consumer from the plurality of resource providers whose one or more flavors matches the flavor assigned to the resource consumer.

31. The method of claim 30, wherein assigning at least one flavor to each resource consumer includes updating a field associated with each resource consumer to indicate the flavors assigned to each resource consumer.

32. The method of claim 30, wherein the flavors are selected from a group of flavors including an application flavor, a support flavor, and an operating system flavor.

33. The method of claim 32, wherein assigning at least one flavor to each resource consumer includes determining if the resource consumer is an operating system program and, if the

resource consumer is an operating system program, assigning the operating system flavor to the program.

34. The method of claim 32, wherein assigning at least one flavor to each resource consumer includes determining if the resource consumer is an application program and, if the resource consumer is an application program, assigning the application flavor to the program.

## **9. EVIDENCE APPENDIX**

None.

## **10. RELATED PROCEEDINGS APPENDIX**

None.